

Sheet 4  
RFD.

PAR 223

Monochromatic Lens System

5 October 1964

NGA Declass Review  
Complete

PROJECT AUTHORIZATION REQUEST

PAR 223

5 Oct 64

SUBJECT: Monochromatic Lens System

TASK/PROBLEM

1. To explore the possibilities of the improvement of optical systems by restriction of the wavelength range of the lens correction.

PROPOSAL

2. Under separate projects (PAR 202 Briefing Print Enlarger and PAR 224, 3X - 15X FG Enlarger) two series of six enlarging lenses are being designed and samples will be made for identical field angle, object-image distance, and magnification values. One group will be corrected for a narrow band of blue light at 4600A. The second group will be corrected for, effectively, the full visible spectrum. An organized comparison between the corresponding individual lenses of these two groups can provide useful information of the gain, or the lack of it, of image quality produced by restriction of the wavelength range.

3. We propose to make the comparison upon at least two bases:

a. The computed ray distribution at the image point. This may be shown as curves of the percentage of rays included within circles of various diameters or more qualitatively as "spot diagrams".

b. Photographic print examples (transparencies) of resolution target patterns for objective comparison of resolving power and subjective observation of edge sharpness.

4. The testing operations upon the two groups of lenses may suggest variations in or additions to these proposals.

PROGRAM OBJECTIVES

5. Publication of final report discussing:

a. Advantages and/or disadvantages of optical systems utilizing restriction of wavelength range of lens correction.

b. Recommendations.

6. Preparation of briefing aids.

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SCHEDULE

7. A tentative schedule covering major phases of effort is shown in Fig. 1. The time span indicated to complete the subject program is based on actual start of work.

TENTATIVE SCHEDULE

Monochromatic Lens System

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MONTHS

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

1. Test
2. Evaluate
3. Informal Reports
4. Qtr. Reports
5. Final Report

NOTE: Start of schedule  
is dependent on  
availability of  
lenses from  
PARs 202 and 224.

KEY: 0 - Start  
# - Complete  
⊙ - Deliver